CLAIMS

1. A polishing method for inhibiting static etching of a substrate comprising:

providing a metal polishing slurry composition;

adding an iodate-free halogenated inhibiting compound to said metal polishing slurry to form a resultant metal polishing slurry; and

polishing a substrate, while substantially inhibiting static etching of said substrate.

2. The method of claim 1, wherein adding a halogenated inhibiting compound comprises adding a compound having a molecular ion selected from the group consisting of bromate (BrO_3^-), chlorate (ClO_3^-), and a combination thereof.

3. The method of claim 1, wherein adding a halogenated inhibiting compound comprises adding a compound selected from the group consisting of potassium bromate ($KBrO_3$), potassium chlorate ($KClO_3$), and a combination thereof.

4. The method of claim 1, wherein adding a halogenated inhibiting compound comprises adding an amount of halogenated inhibiting compound less than about the amount required to form a fully saturated solution.

5. The method of claim 1, wherein adding a halogenated inhibiting compound comprises adding a sufficient amount of halogenated inhibiting compound such that the said resultant slurry solution has an etching removal rate below about 200 angstroms/minute.

6. The method of claim 1, wherein adding a halogenated inhibiting compound comprises adding a sufficient amount of halogenated inhibiting compound to form a resultant slurry solution with a pH greater than about 1.

7. The method of claim 6, wherein adding a halogenated inhibiting

compound comprises adding a sufficient amount of halogenated inhibiting compound to form a resultant slurry solution with a pH between about 2 and about 4.

8. The method of claim 1, wherein performing a static etch comprises performing a static etch maintaining a removal rate less than about 200 Angstroms/Minute.

9. The method of claim 1, wherein performing a static etch comprises performing a static etch on a tungsten substrate.

10. A metal polishing slurry for inhibiting the static etching of a substrate comprising:

an oxidizer;

a complexing agent; and

an inhibitor,

wherein said inhibitor comprises an iodate-free halogenated inhibiting compound.

11. The metal polishing slurry of claim 10, further comprising an abrasive agent.

12. The metal polishing slurry of claim 11, wherein the oxidizer comprises a compound selected from the group consisting of hydrogen peroxide, potassium ferrocyanide, potassium dichromate, vanadium trioxide, hypochlorous acid, sodium hypochlorite, potassium hypochlorite, calcium hypochlorite, ferric nitrate, ammonium persulfate, ammonium nitrate, potassium nitrate, potassium permanganate, ammonium hydroxide and combinations thereof.

13. The metal polishing slurry of claim 11, wherein the complexing agent comprises a compound selected from the group consisting of malonic acid, lactic acid, SSA, formic acid, acetic acid, propanoic acid, butanoic acid, pentanoic acid, hexanoic acid, heptanoic acid, octanoic acid, nonanoic acid, and combinations thereof.

14. The metal polishing slurry of claim 11, wherein the abrasive agent

is selected from the group consisting of silica, alumina, silicon carbide, silicon nitride, iron oxide, ceria, and combinations thereof.

15. The metal polishing slurry of claim 11, wherein said inhibitor comprises a molecular ion selected from the group consisting of bromate (BrO_3^-), chlorate (ClO_3^-), and a combination thereof.

16. The metal polishing slurry of claim 15, wherein said inhibitor comprises a compound selected from the group consisting of potassium bromate ($KBrO_3$), potassium chlorate ($KClO_3$), and a combination thereof.

17. The metal polishing slurry of claim 10, wherein said inhibitor comprises an amount of halogenated inhibiting compound less than about the amount required to form a fully saturated solution.

18. The metal polishing slurry of claim 10, wherein said slurry comprises an etch removal rate of less than about 200 angstroms/minute.

19. The metal polishing slurry of claim 10, wherein said slurry comprises a pH of greater than about 1.

20. The metal polishing slurry of claim 19, wherein said slurry comprises a pH of about 2 to about 4.

21. The metal polishing slurry of claim 10, wherein said oxidizer is present at a concentration of about 1 wt % to about 8 wt %.

22. The metal polishing slurry of claim 21, wherein said oxidizer is present at a concentration of about 2 wt % to about 4.5 wt %.

23. The metal polishing slurry of claim 10, wherein said complexing agent is present at a concentration of about 1 wt % to about 3 wt %.

24. The metal polishing slurry of claim 10, wherein said oxidizer comprises an iodate-free oxidizer.

25. A metal polishing slurry for inhibiting the static etching of a substrate comprising:

hydrogen peroxide;

ferric nitrate;

malonic acid;

lactic acid;

SSA; and

potassium chlorate.

26. The metal polishing slurry of claim 25, wherein:

hydrogen peroxide is present at a concentration of about percent by weight;

ferric nitrate is present at a concentration of about 0.01 percent by weight;

malonic acid is present at a concentration of about 0.07 percent by weight;

lactic acid is present at a concentration of about 1.5 percent by weight;

SSA is present at a concentration of about 0.01 percent by weight; and

potassium chlorate is present at a concentration of at least about 0.01 percent by weight.